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23413	7590	09/22/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			BODDIE, WILLIAM	
			ART UNIT	PAPER NUMBER

2629

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Please find below and/or attached an Office communication concerning this application or proceeding.



## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 14 is objected to because of the following informalities: the phrase, "output of a image data" is incorrect grammatically. The phrase could be corrected as follows, "output of a[n] image data". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 6-9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawaguchi et al. (US 5,592,199).

**With respect to claim 1**, Kawaguchi discloses, an LCD apparatus comprising:  
an LCD panel (120 in fig. 17) to receive an image data externally provided and display an image;

a data driver (3 y-axis ICs, 105 in fig. 17) to output the image data to the LCD panel;

a gate driver (2 x-axis ICS, 105 in fig. 17) to output a gate driving signal to the LCD panel; and

a timing controller (111 in fig. 17; col. 23, lines 29-40) to provide a first control signal (x-axis 173 in fig. 17) to the gate driver so as to control an output of the gate driving signal and to provide a second control signal (y-axis 173 in fig. 17) to the data

Art Unit: 2629

driver via a signal line formed on the LCD panel (clear from fig. 17) so as to control an output of the image data.

**With respect to claim 2**, Kawaguchi discloses, the LCD apparatus of claim 1 (see above), wherein the signal line is formed on an area adjacent to the data driver (clear from fig. 17).

**With respect to claim 3**, Kawaguchi discloses, the LCD apparatus of claim 2 (see above), further comprising a plurality of signal transmission members (104a in fig. 17) electrically connecting the data driver with the LCD panel,

wherein the signal line receives the second control signal from the timing controller via one of the signal transmission members (clear from fig. 17).

**With respect to claim 4**, Kawaguchi discloses, the LCD apparatus of claim 3 (see above), wherein the LCD panel comprises:

a plurality of gate lines (note the outputting gate lines from the ICs in fig. 17) to receive the gate driving signal via the gate driver, the gate lines disposed on the LCD panel, extended in a first direction and arranged in a second direction substantially perpendicular to the first direction; and

a plurality of data lines (103 in fig. 17) to receive the image data via the data driver, the data lines disposed on the LCD panel, extended in the second direction and arranged in the first direction (col. 37, lines 29-42, discusses the orientation and design of a matrix panel using the gate and data lines oriented in the way currently claimed).

**With respect to claim 5**, Kawaguchi discloses, the LCD apparatus of claim 4 (see above), wherein the signal line is extended in the first direction and is substantially parallel to the gate lines (seems clear from fig. 17).

**With respect to claim 7**, Kawaguchi discloses, an LCD apparatus comprising:  
an LCD panel (120 in fig. 17) to receive an image data and display an image;  
a data driver (3 y-axis ICs, 105 in fig. 17) to output the image data to the LCD panel;

a gate driver (2 x-axis ICs, 105 in fig. 17) to output a gate driving signal to the LCD panel; and

a timing controller (111 in fig. 17; col. 23, lines 29-40) to provide a first control signal (x-axis 173 in fig. 17) to the gate driver so as to control an output timing of the gate driving signal and provide a second control signal (y-axis 173 in fig. 17) to the data driver so as to control an output timing of the image data;

a plurality of signal transmission members (104a in fig. 17) to electrically connect the data driver with the LCD panel; and

a signal line to provide the second control signal to the data driver via one of the signal transmission members (clear from fig. 17).

**With respect to claim 8**, Kawaguchi discloses, the LCD apparatus of claim 7 (see above), wherein the LCD panel comprises:

a plurality of gate lines (note the outputting gate lines from the ICs in fig. 17) extended in a first direction and arranged in a second direction substantially perpendicular to the first direction; and

a plurality of data lines (103 in fig. 17) extended in the second direction and arranged in the first direction (col. 37, lines 29-42, discusses the orientation and design of a matrix panel using the gate and data lines oriented in the way currently claimed).

**With respect to claim 9**, Kawaguchi discloses, the LCD apparatus of claim 8 (see above), wherein the signal line is extended in the first direction and is substantially parallel to the gate lines (clear from fig. 17).

**With respect to claim 11**, Kawaguchi discloses, the LCD apparatus of claim 7 (see above), wherein the signal line is formed on the LCD panel and adjacent to the data driver (clear from fig. 17).

**With respect to claim 12**, Kawaguchi discloses, an LCD apparatus comprising:  
an LCD panel (120 in fig. 17);  
a data driver coupled to the LCD panel (3 y-axis ICs, 105 in fig. 17);  
a gate driver coupled to the LCD panel (2 x-axis ICS, 105 in fig. 17);  
a timing controller (111 in fig. 17; col. 23, lines 29-40) coupled to the gate driver and to the data driver; and

a signal line (173 in fig. 17) formed on the LCD panel, the signal line electrically connecting the timing controller with the data and gate drivers.

**With respect to claim 13**, Kawaguchi discloses, the LCD apparatus of claim 12 (see above), wherein the signal line is formed on an area adjacent to the data driver (clear from fig. 17).

**With respect to claim 14**, Kawaguchi discloses, the LCD apparatus of claim 13 (see above), further comprising a plurality of signal transmission members (104a in fig. 17) electrically connecting the data driver with the LCD panel,

wherein the signal line receives a control signal from the timing controller via one of the signal transmission members so as to control an output of an image data from the data driver (col. 23, lines 29-40; also seems clear from fig. 17).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. (US 5,592,199) in view of Kubota et al. (US 6,791,526).

**With respect to claim 6**, Kawaguchi discloses, the LCD apparatus of claim 4 (see above), wherein the LCD panel comprises a plurality of pixel areas defined by the gate and data lines (col. 37, lines 29-42).

Kawaguchi is silent on the exact timing of the signals and their application to pixel areas.

The conventional timing of LCD panel signals is disclosed by Kubota. Kubota discloses, that the gate driving signal is provided to a corresponding pixel area at a same time as that of the image data provided to the corresponding pixel area (col. 1, lines 62-67).

Kubota and Kawaguchi are analogous art because they are both from the same field of endeavor namely control circuitry design for LCD panels.

At the time of the invention it would have been obvious to one of ordinary skill in the art to time the gate and data signals of Kawaguchi in the conventional manner disclosed by Kubota.

The motivation for doing so would have been so that each pixel receives the correct data waveform at the appropriate time, as well as for a decreased timing complexity.

Therefore it would have been obvious to combine Kawaguchi with Kubota for the benefit of decreased timing complexity to obtain the invention as specified in claim 6.

**With respect to claim 10**, Kawaguchi discloses, the LCD apparatus of claim 9 (see above), wherein the LCD panel comprises a plurality of pixel areas defined by the gate and data lines (col. 37, lines 29-42).

Kawaguchi is silent on the exact timing of the signals and their application to pixel areas.

The conventional timing of LCD panel signals is disclosed by Kubota. Kubota discloses, that the gate driving signal and the image data are substantially simultaneously provided to a corresponding pixel area (col. 1, lines 62-67).

At the time of the invention it would have been obvious to one of ordinary skill in the art to time the gate and data signals of Kawaguchi in the conventional manner disclosed by Kubota.



The motivation for doing so would have been so that each pixel receives the correct data waveform at the appropriate time, as well as for a decreased timing complexity.

Therefore it would have been obvious to combine Kawaguchi with Kubota for the benefit of decreased timing complexity to obtain the invention as specified in claim 10.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kang (US 2001/0022568) discloses a signal line that is formed on the LCD panel.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

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